ABSTRACT

A process for curing a natural or synthetic rubber compound under a plurality of curing conditions by: (1) obtaining time dependent data streams of dielectric or impedance values from a non-bridged impedance sensing circuit and a capacitor having the rubber compound being cured as a dialectric; (2) determining impedance related measurements from the obtained data streams; (3) determining a predictive curing equation by performing a multiple regression between: (a) reheometric data obtained from a plurality of different rubber compound samples cured in a rheometer at various environmental curing conditions, and (b) corresponding samples cured in a production mold at the same environmental conditions; (4) adjusting the curing equation to obtain cured parts having one or more desired properties; and (5) controlling the mass producing cured parts with a controller that uses the curing equation for predicting a cure time for each part, wherein the predictions are effective over variations in the rubber compound, and in the mold temperature.

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